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Environmental Portfolio Standard
Docket No. RE-00000C-00-0377

July 12, 2004

Marc Spitzer, Chairman
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Arizona Corporation Commission
DOCKETED

JUL 13 2004

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Subject: **Proposed Changes to the Environmental Portfolio Standard**

Dear Chairman Spitzer:

As you know, the Environmental Portfolio Standard was originally named The "Solar Portfolio Standard" and for good reasons, since the intent was to use the great abundance of solar energy in Arizona to replace the combustion of fossil fuels to the greatest possible extent.

Other technologies such as power generation with extracted landfill gas were added as an after thought and to offset the anticipated high cost of solar electric power with a commercially competitive technology.

To the extent that the mandated percentage of renewable energy was to increase annually, without a comparable increase in available "surcharge" funds, it was unavoidable that either the surcharge would have to be raised or the percentage dropped or more importantly that structural changes be put into effect to solve this problem.

Since Solar Electric, not surprisingly has indeed turned out to be more expensive then other renewable technologies, the obvious temptation is to reduce the percentage of solar energy technologies, when in reality the real solution IS A MAJOR INCREASE in the percentage of solar energy, i.e., Solar Thermal Energy. To wit:

Every year since the inception of the EPS, APS has been buying approximately one million kWh solar credits from the solar thermal system that has been in operation at the Federal Correction Institution in North Phoenix for over 3 years, or the equivalent of 1000 MWh (about 3.4 billion Btu's). The pegged price is 3.74¢ per kWh, about the same that APS is paying for the "credits" originating from landfill gas combustion.

The problem is that the current EPS language limits this application to "solar thermal that replaces or supplements the use of electric water heaters"...and that FCI in that respect is unique...

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If that language were broadened to include conversion to "solar thermal that replaces fossil fuel firing", i.e. oil or gas and the 20% limitation lifted, there would be a very significant potential for that application and it would solve the above mentioned problem of inadequate funds and actually do more for the environment, then is currently possible.

The consumption of natural gas in Arizona would be substantially reduced and surcharge funds more prudently spent, if replacing fossil fuels with solar energy could be incorporated in the EPS, as has been the case in Nevada.

The State Prison System alone offers a potential for about seven such applications that would be similar to the system in North Phoenix. These 7 systems would require a total outlay of about $3.5 million. They would generate about 34 billion Btus annually as steam or hot water, which would count as about 10,000 MWh. (To get the equivalent amount of credits from a PV system would probably require a 6 MW installation costing perhaps 10 times that much)!

This is an excellent example of a "commercially ready" technology as referenced in numerous recent proposals for changes to the EPS.

There is clearly no shortage now or in the foreseeable future of electric generating capacity in Arizona but there is a current and projected squeeze on the supply of natural gas as reflected by the recent steep price increases.

Enclosed is a photograph of the aforementioned solar thermal system that is in operation at the Federal Correction Institution in Phoenix and an appraisal from the relevant Federal Government contractor.

As a consultant to the owner/operator of that installation, I arrange periodic inspection trips to the site, the next one being scheduled July 29 2004. I would like to take this opportunity to invite you to join us on that occasion. Please indicate your availability for that day by replying to **Bellac@azlink.com.**

Sincerely,

Alphonse H. Bellac

NREL
National Renewable Energy Laboratory

May 14, 2003

Industrial Solar Technology Corporation
4420 McIntyre Street
Golden, CO 80403
Attn: Mr. Kenneth May, President

Dear Mr. May:

Industrial Solar Technology (IST) designed, manufactured and installed a large-scale parabolic trough solar collector system to heat hot water at the Federal Correctional Institution (FCI) in Phoenix, Arizona. The system came on line in March of 1999. Following one year of measured performance, the project was issued First Place in the Regional Technology Awards by the American Society of Heating, Refrigeration and Air Conditioning Engineers in 2001.

Personnel working at the National Renewable Energy Laboratory (NREL) in Golden, Colorado as part of the Department of Energy's Federal Energy Management Program (FEMP) were actively involved in the engineering review of the original system design and in defining the contractual arrangements under which the solar system was installed and is operated. Following the success of this project, the Department of Energy awarded IST the federal government's first renewable energy "super ESPC". This provides the contractual means for IST to install solar systems at other federal institutions. FEMP continues to assist in this process as a means of promoting solar as a clean, renewable, cost-effective energy supply for the federal government. In addition, FEMP continues to monitor the system for performance and quality control using its own instrumentation installed at the site. Data is accessible by a phone modem maintained by IST.

During the last full year of system operation (2002), the solar system displaced more than 1.1 million kWh of electricity that would have been consumed to heat domestic hot water. This is net of all heat losses and electric power used to run the solar equipment. As a result of the solar system installation, FCI saves about $77,000 per year in utility costs. Under the ESPC contract, FCI pays IST for measured energy delivery at a rate 90% of whatever the utility would charge, or $70,000 in 2002, for a net savings of $7,000 per year to the prison. By delivering more than 70% of the annual need for hot water, the solar system has greatly reduced the costly job of replacing burnt out heating elements. The solar system has also eliminated the need for expensive upgrades to the conventional heating system to keep up with the need for increased hot water in inmate housing, the kitchen and laundry.

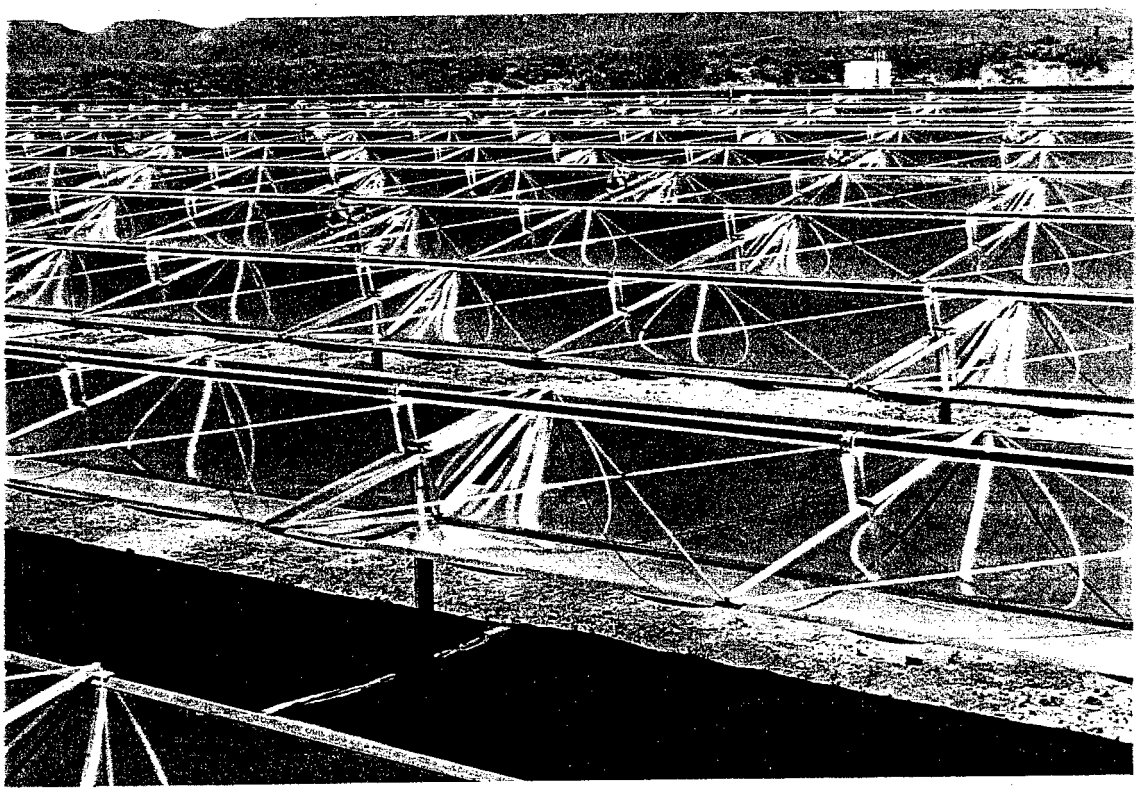
The solar system has operated with high reliability. Under the terms of our monitoring contract, IST submits to NREL a log of required maintenance. The log indicates that all incidents and routine maintenance requirements have been dealt with by IST or their local contractor in a timely fashion.

In 2002, working as a subcontractor, IST assisted in the installation of solar systems at two Veterans' Administration hospitals in Texas. IST is currently manufacturing parabolic trough solar collectors that will be installed on a turnkey basis to deliver energy to a district heating system at Fort Sam Houston in San Antonio, Texas. FEMP will continue to monitor renewable energy installations at federal institutions.

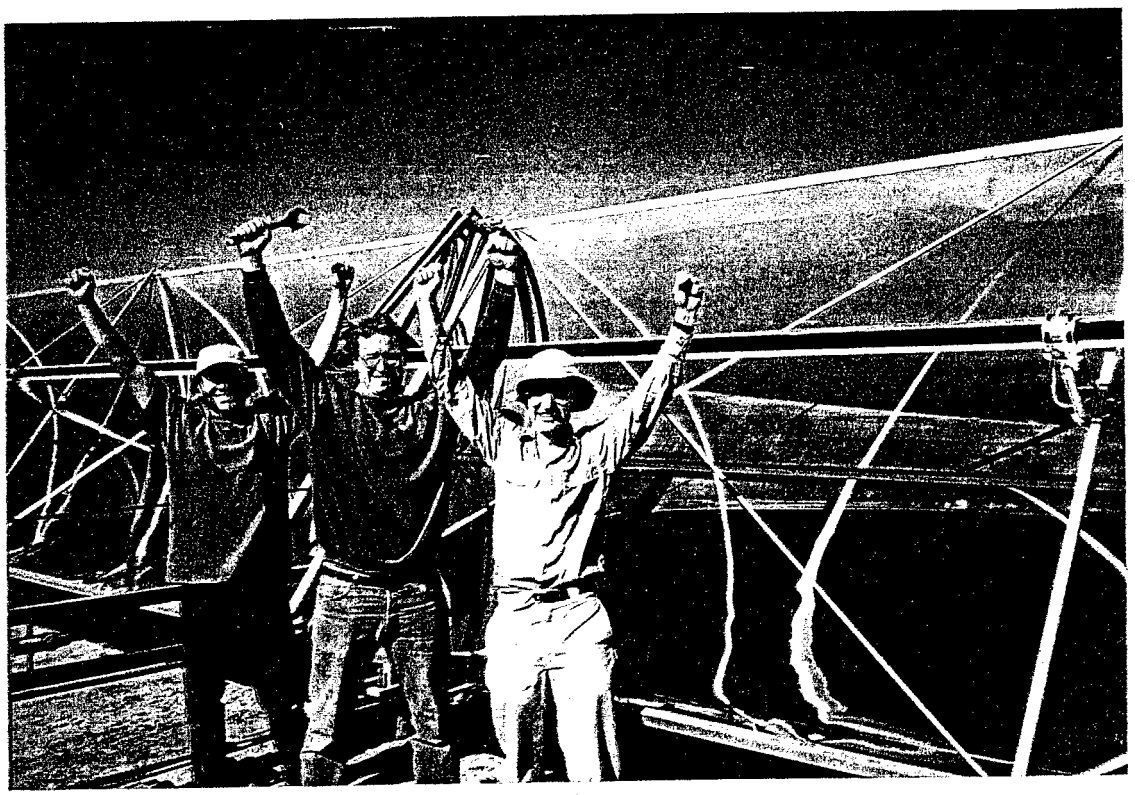
Yours truly,
Andy Walker

Andy Walker PhD PE
Senior Engineer

Solar System Operations



18,000 square feet of solar collectors tracking the sun.



IST personnel celebratin the start up of the syster

The solar system operates unattended. Under peak conditions, it delivers about 3.4 million Btu/h (1,000 kW) of heat to the energy storage tank capturing over 60% of the solar energy incident on the collectors. During a sunny day, it supplies over 50,000 gallons of hot water to the institution displacing around 4,000 kWh of electricity.